

Patent claims.

1.    The use of a nucleic acid (1) for detecting an explosive (2), wherein the nucleic acid  
5    (1) specifically binds to a partial molecular structure (3) or the overall molecular structure of the explosive (2), and wherein a binding event between the partial molecular structure (3) or the overall molecular structure and the  
10    nucleic acid (1) is detected.

2.    The use according to claim 1, wherein the partial molecular structure (3) carries available oxygen directly bound to a nitrogen atom or to several nitrogen atoms.

15    3.    The use according to claim 2, wherein the partial molecular structure (3) is selected from the group consisting of "nitrites, nitrates, nitro and nitroso compounds".

20    4.    The use according to one of claims 1 to 3, wherein the explosive is selected from the group consisting of "nitrobenzol derivatives, TNT, 2,4-DNT, 2,6-DNT, 2-NT, picric acid, hexogen, octogen, hexyl, tetryl, ethylene glycol dinitrate, diethylene glycol dinitrate, nitroglycerin, nitropenta and derivatives of such com-  
25    pounds".

5.    The use according to one of claims 1 to 4, wherein the nucleic acid (1) is selected from

the group consisting of "sequences of Figs. 8 and 9 or any fragments of these sequences having a length of at least 6, in particular at least 10 nucleotides."

5           6. The use according to one of claims 1 to 5, wherein a binding event is detected by measurement of a signal of a detector molecule (5) being marked, in particular fluorescence-marked (4) and competitively replaced in the binding to  
10           the nucleic acid (1) by a molecule of the explosive (2).

          7. The use according to one of claims 1 to 6, wherein the nucleic acid (1), as an option by a spacer compound (6), is immobilized at a solid  
15           body surface (7), in particular the surface of an optic fiber (8).

          8. The use according to claim 6 or 7, wherein the signal is generated by decrease or increase of the signal intensity of bound detector molecules (5).  
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          9. The use according to one of claims 6 to 8, wherein the signal is generated by increase of the signal intensity of released detector molecules (5).

25           10. A nucleic acid (1) for use according to one of claims 1 to 9 according to one of the sequences of Figs. 8 and 9 or any fragments of

these sequences having a length of at least 6,  
in particular at least 10 nucleotides.

11. A device for detecting an explosive (2)  
with a nucleic acid (1) being specific for a  
5 partial molecular structure (3) of the explosive  
(2), preferably immobilized at a solid body sur-  
face (7), comprising means for detecting a bind-  
ing event (9) between the partial molecular  
structure (3) and the nucleic acid (1) and com-  
10 prising means for feeding a sample (10) to the  
nucleic acid (1).

12. A device according to claim 11, wherein  
the nucleic acid (1) is immobilized by a spacer  
compound (6) at an optic fiber (8), wherein the  
15 nucleic acid (1) is loaded with a fluorescence-  
marked (4) detector molecule (5), wherein the  
binding force nucleic acid (1)/detector molecule  
(5) is lower than the binding force nucleic acid  
(1)/partial molecular structure (3), wherein a  
20 light source (11) for the fluorescence excita-  
tion of the detector molecules (5) is provided,  
wherein the optic fiber (8) is connected to a  
fluorescence detector (9), and wherein at least  
a part of the optic fiber (8) is arranged in a  
25 sample gas or liquid space (12), whereinto a gas  
or liquid sample (13) can be supplied.